

October 15, 2001

Via Hand Delivery and Electronic Transmission

Ms. Magalie Roman Salas
Secretary
Federal Communications Commission
445 – 12th Street, S.W.
Washington, D.C. 20554

Re: TTY Status Report, CC Docket No. 94-102

Dear Ms. Salas:

Verizon Wireless hereby submits its quarterly status report of TTY-digital deployment as required by the Commission's *Fourth Report and Order* in the above referenced proceeding. In accordance with paragraph 18 of the *Fourth Report and Order*, an original and four copies of this report are enclosed for your office's records with additional copies for Kris Monteith, Chief of the Policy Division, Wireless Telecommunications Bureau, and Pam Gregory, Chief of the Disabilities Rights Office, Consumer Information Bureau. Additionally, this report was: provided on diskette to Qualex International, filed electronically through the Commission's Electronic Comment Filing System ("ECFS"), and electronically mailed to mlittell@fcc.gov as directed by the *Fourth Report and Order*. Should you need additional information, please contact the undersigned.

Sincerely,

John T. Scott, III

cc: Kris Monteith
Pam Gregory

TTY REPORT
VERIZON WIRELESS
October 15, 2001

I. INTRODUCTION

The industry has worked diligently to develop standards and the necessary hardware and software for TTY compatibility with digital wireless systems. The FCC established two dates for TTY compliance. By December 31, 2001, carriers must have obtained all software upgrades and equipment necessary to make their systems capable of transmitting 911 calls from TTY devices. An additional six-month period, ending June 30, 2002, was granted during which time carriers must integrate, test, and deploy that technology in their systems in conjunction with the public safety community. Verizon Wireless has made substantial progress by not only receiving the necessary software and hardware from its three network infrastructure vendors, but taking proactive steps to integrate, test, and begin deploying the technology. The TTY solution developed for CDMA is on track for both the December 2001 interim deadline and the June 30, 2002 transmission capability deadline. Verizon Wireless fully expects to meet its obligations under the rules.

Development of handsets was delayed by code changes necessary to accommodate the updates to TTY standards. However, handsets are now becoming available for testing on carriers' networks. Since the progress of implementing changes to Verizon Wireless' networks has already begun, testing is planned to begin ahead of the 2002 six-month window established by the Commission.

Verizon Wireless is engaged in securing phones for testing and test equipment, participating in the development of standard test procedures, and participating with TTSI ("TTY Technical Standards Incubator")(an outgrowth of the TTY Forum). TTSI was established to facilitate testing TTY devices on all networks, phones, and with PSAPs. TTSI will coordinate testing by carriers collectively beginning in November in Chicago. As handsets and testing equipment become more readily available and standard test procedures are finalized, additional testing will ensure interoperability between vendors and different air interfaces.

II. SWITCH VENDORS

Verizon Wireless has three switch vendors whose products are used within our network. Each vendor's switch platform requires different software and hardware modifications for TTY compliance. Verizon Wireless is pleased to report that all three switch vendors are providing the necessary software and hardware for meeting the December 31, 2001 deadline.

A. Lucent Technologies – Lucent developed a solution for CDMA technology that is the basis of VZW's compliance effort. Of two vocoder standards, VZW selected IS-127-2 as the appropriate standard for our infrastructure. The standard, as originally developed, was balloted and approved. However, as shortcomings were discovered in

the IS 127-2 (EVRC) and the IS 733-1 (13K) vocoder standards, Lucent developed solutions or “fixes” to improve them. At the time of the April report, the improved standard, IS-127-3 was in the Validation and Verification stage, and the next step was submission for ballot. Since then, Verizon Wireless has learned that the ballot comments on the standard have been resolved and the newly revised standard will be published later this year.

1) Infrastructure Status

Currently, the Lucent systems within VZW markets require the same vocoder upgrade as do handsets. In order to accomplish this, the Lucent systems within VZW’s network must undergo both software and hardware upgrades. The software required for compliance is software release 16. Verizon Wireless is already on software release 16 in Lucent markets and is awaiting release 17, which will provide capabilities needed for 3G and other regulatory mandates. The hardware required for compliance is the PHV 4 card that contains the vocoders for the network. The existing PHV cards in the network that are not compatible have been replaced in six of the nine remaining states. The number of PHV cards to be replaced now are few and VZW expects to replace all of them by the end of this year.

2) Testing

- *Lucent Lab Testing*

At the time of the April report, Lucent indicated that development work on the feature set (which resides in software Release 16) to provide the TTY application was complete and that initial lab testing with prototype mobiles using the latest Qualcomm software updates was underway. Another round of testing, using field grade mobiles to further test software release 16, that was planned for completion in May occurred.

- *First Office Application (“FOA”) Testing*

FOA testing was delayed by a few weeks and is now scheduled to occur in Jersey City during mid October. The delay was necessary to secure CDMA mobiles and appropriate TTY testing equipment and test software.

- *Consumer/PSAP Testing*

With respect to testing with PSAPs, Lucent indicates that it can incorporate this type of testing as joint FOA test plans are being developed. VZW’s original plans to arrange its own field tests and end to end tests with user groups from Galludet University and a PSAP have changed. Instead, VZW will participate with the TTTSI sponsored industry testing.

B. Motorola – TTY support on the Motorola CDMA network is implemented via feature 4454 and supported on CBSC software load 2.15.0.39.10. Verizon Wireless expects to complete upgrades to this software load by mid November of this year.

1) Infrastructure Status

The only hardware requirement to support TTY is that the Motorola transcoder (HXCDR) board (SGLN4971xx) be in place because previous versions of the boards cannot support the modified vocoder. Motorola's software load became commercially available at the end of May. The Motorola transcoder boards are now in service within Verizon Wireless's network and are ready for testing.

2) Testing

- *Motorola Lab Testing*

Infrastructure lab testing is complete including interoperability testing with both Qualcomm and Motorola handsets. Motorola reports that its lab tests included all permutations of calls and all were successful.

- *FOA Testing*

Motorola has completed an FOA of its software, but has not conducted an FOA which end to end tests the feature with a compatible handset. An FOA for testing the TTY feature with the Motorola infrastructure will be scheduled soon commensurate with the availability of handsets and test equipment.

- *Consumer/PSAP Testing*

Verizon Wireless will participate in the testing coordinated by TTSL.

C. Nortel – Nortel's solution will require software upgrades to the switch and to base stations.

1) Infrastructure Status

Nortel has the enabling software, MTX09, which is generally available and deployed throughout much of the Verizon Wireless footprint. The next switch software release, MTX10, will provide additional network capabilities required for other regulatory mandates. Once MTX10 is generally available, it will be deployed within Verizon Wireless' network as well.

The baseline requirement for the Nortel base stations is NBSS 10.1.1 or higher. NBSS 10.1.1 is currently being tested in our Los Angeles, California and Columbus, Ohio markets. Although this software was scheduled to be generally available October 12, 2001, testing has revealed some problems that are being addressed. Verizon Wireless

expects those problems to be worked out in the next few weeks. Once completed, Verizon Wireless will be deploying the base station software over the next several months to complete prior to the June 30, 2002 service implementation date.

2) Testing

- *Nortel Lab Testing*

For the April report, Nortel indicated that its development and product test to current standards was complete. Nortel completed testing using Qualcomm prototypes, which have shown positive results. Nortel does not anticipate performance issues with any other vendor's handsets once they become available.

- *FOA Testing/Consumer & PSAP Testing*

VZW expects to schedule an FOA for 1Q2002 once the preliminary testing of the network currently being conducted in Columbus, Ohio and Los Angeles, California is complete. Consumer and PSAP testing will be done through TTSI.

III. CHIPSET AND HANDSET VENDORS

A. Qualcomm – Qualcomm makes the chipsets used in various handsets designed for Verizon Wireless. As a practical matter, the availability of handsets from handset vendors, except Motorola, will depend in large part on the availability of the Qualcomm chipsets. VZW is now in the process of receiving phones containing Qualcomm's chipset that are TTY compatible. Several of these are currently undergoing an internal standard evaluation process that VZW requires for all products sold. Products approved by this process will then be tested on the networks during the FOA process. Further testing with TTSI will be performed once the FOA process demonstrates that the phones are compatible with the network.

Some internal preliminary testing of phones has been performed for some products. Additional products from the following vendors will be tested soon: Audiovox, LGIC, Nokia, and Samsung. These products will be available for testing in the FOA process with the network software and hardware provided by Verizon Wireless' three infrastructure vendors.

B. Motorola – expects to have the TTY solution in their product line in 2002.